

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

1-16 (Cancelled).

17. (Currently Amended) ~~The system as recited in claim 16, wherein polling said at least one network device comprises:~~

A distributed network management system, comprising:

a selected network hub server for communicating with a plurality of remote network servers or with at least one network device;

each of said plurality of remote network servers for communicating with said at least one network device and said selected network hub server wherein each of said remote network servers derives state information from said network device by;

polling said at least one network device at a polling interval, wherein polling said at least one network device comprises;

sending a plurality of pings to an interface address on said at least one network device during said polling interval; and

monitoring a number of pings returned from said at least one network device and calculating a percentage based on the number of pings sent and said number of pings returned;

sending a query related to operational status to said at least one network device;
receiving a response regarding said operational status from said at least one network device, wherein receiving a response regarding said operational status from said at least one network device comprises:

receiving a response indicating whether said operational status is “up”, “down”, or “unknown”; and

generating a status percentage for the polling interval by multiplying the percentage pings returned by a constant value associated with said operational status,

said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and
computing a weighted average over at least one said polling interval using results of
said polling and said responses received from said at least one network device, wherein the
weighted average is a representation of the state of said network device and
wherein computing the weighted average comprises:

computing the weighted average of the status percentage for a current and at least one previous polling interval and determining the state of said at least one network device from the weighted average[[.]]; and
storing said weighted average.

18. (Cancelled)

19. (Previously Presented) A computer readable storage medium having a program for generating a source code object, the program comprising logic for executing an LTP paradigm, said LTP paradigm comprising the steps of:

defining a polling interval for at least one network device;
sending a plurality of pings to an interface address on said at least one network device during said polling interval;
monitoring a number of pings returned from said at least one network device and calculating a percentage based on the number of pings sent and said number of pings returned;
sending a query to said at least one network device and determining operational status of said at least one network device from said query based on a response from said at least one network device, said operational status comprising “up”, “down”, and “unknown”;
using the calculated percentage of pings returned and said status response, generating a status percentage for the polling period by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first

value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and

computing a weighted average of the status percentages for current and previous four polling periods and determining the state of said at least one network device from the weighted average.

20. (Previously Presented) A system for deriving state information from a network device, comprising:

- (a) a computer; and
- (b) programming associated with said computer for carrying out the operations of
 - (i) defining a polling interval;
 - (ii) sending, from an ICMP server, a plurality of pings to an interface address on said network device during said polling interval;
 - (iii) monitoring the number of pings returned from said network device and converting said number to a percentage based on the number of pings sent;
 - (iv) sending an SNMP query to said network device and determining operational status of said network device from said SNMP query, said operational status comprising “up”, “down”, and “unknown”;
 - (v) using the percentage of pings returned and the SNMP status, generating a status percentage for the polling period by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and
 - (vi) computing a weighted average of the status percentages for current and previous four polling periods and determining the state of the network device from the weighted average.

30. (Currently Amended) The method as recited in claim 29,
A method for deriving state information, comprising:
polling at least one network device at a polling interval, wherein polling said at least one network device comprises:
sending a plurality of pings to an interface address on each said at least one network device during said polling interval; and
monitoring a number of pings returned from said at least one network device and calculating a percentage based on the number of pings sent and said number returned;
sending a query related to operational status to said at least one network device;
receiving a response regarding said operational status from said at least one network device, wherein receiving a response regarding said operational status from said at least one network device comprises:
receiving a response indicating whether said operational status is “up”, “down”, or “unknown”; and
generating a status percentage for the polling interval by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and
computing a weighted average over at least one said polling interval using results of said polling and said responses received from said at least one network device, wherein the weighted average is a representation of the state of said at least one network device and wherein computing weighted average comprises:
computing the weighted average of the status percentage for at least one previous polling interval and determining the state of said at least one network device from the weighted average[[.]]; and
storing said weighted average.

31. (Previously Presented) A method for deriving state information from a network device, comprising:

- (a) defining a polling interval;
- (b) sending, from an ICMP server, a plurality of pings to an interface address on said network device during said polling interval;
- (c) monitoring the number of pings returned from said network device and converting said number to a percentage based on the number of pings sent;
- (d) sending an SNMP query to said network device and determining operational status of said network device from said SNMP query, said operational status comprising “up”, “down”, and “unknown”;
- (e) using the percentage of pings returned and the SNMP status, generating a status percentage for the polling period by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and
- (f) computing a weighted average of the status percentages for current and previous four polling periods and determining the state of the network device from the weighted average.

32. (Currently Amended) The system as recited in claim [[16]] 17, wherein ~~polling said at least one network device~~ computing the weighted average ~~further~~ comprises:

~~sending a plurality of pings to an interface address on said at least one network device during said polling interval;~~

~~monitoring a number of pings returned from said at least one network device and calculating a percentage based on the number of pings sent and said number of pings returned;~~

~~wherein receiving a response regarding said operational status from said at least one network device comprises:~~

~~receiving a response indicating whether said operational status is “up”, “down”, or “unknown”;~~

generating a status percentage for the polling interval by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and

wherein computing the weighted average comprises:

computing the weighted averaged of the status percentage for a current and the previous four polling intervals and determining the state of said at least one network device from the weighted average.

33. (Cancelled)

34. (Currently Amended) The method as recited in claim [[29]]30, wherein polling said at least one network devicee computing the weighted average further comprises:

sending a plurality of pings to an interface address on said at least one network device during said polling interval;

monitoring a number of pings returned from said at least one network devicee and calculating a percentage based on the number of pings sent and said number of pings returned;

wherein receiving a response regarding said operational status from said at least one network devicee comprises:

receiving a response indicating said operational status is “up”, “down”, or “unknown”;

generating a status percentage for the polling interval by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and

wherein computing the weighted average comprises:

computing the weighted averaged of the status percentage for a current and the previous four polling intervals and determining the state of said at least one network device from the weighted average.

35. (Cancelled)

36. (Currently Amended) The system as recited in claim 17, wherein polling said at least one network device by said selected network hub server comprises: wherein said selected network hub server derives state information from said at least one network device when said at least one remote network server is inoperable by:

polling said at least one network device at the polling interval, wherein polling said at least one network device by said selected network hub server comprises:

sending a plurality of pings to an interface address on said at least one network device during said polling interval; and

monitoring a number of pings returned from said at least one network device and calculating a percentage based on the number of pings sent and said number of pings returned;

sending a query related to operational status to said at least one network device;

receiving a response regarding said operational status from said at least one network device, wherein receiving a response regarding said operational status from said at least one network device comprises:

receiving a response indicating whether said operational status is “up”, “down”, or “unknown”; and

generating a status percentage for the polling interval by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and

computing the weighted average over at least one polling interval using results of said polling and said responses received from said at least one network device when said remote network server communicating with said at least one network device is inoperable, wherein the weighted average is a representation of the state of said network device and wherein computing the weighted average comprises:

computing the weighted average of the status percentage for a current and at least one previous polling interval and determining the state of said at least one network device from the weighted average[[.]]; and
storing said weighted average.

37. (Currently Amended) The system as recited in claim [[15]] 36, wherein polling said at least one network device by said network hub server computing the weighted average comprises:

sending a plurality of pings to an interface address on said at least one network device during said polling interval;

monitoring a number of pings returned from said at least one network device and calculating a percentage based on the number of pings sent and said number of pings returned;

wherein receiving a response regarding said operational status from said at least one network device comprises:

receiving a response indicating whether said operational status is “up”, “down”, or “unknown”;

generating a status percentage for the polling interval by multiplying the percentage pings returned by a constant value associated with said operational status, said constant value comprising a first value if the operational status is “up”, a second value if the operational status is “down”, and a third value if the operational status is “unknown”; and

wherein computing a weighted average comprises:

computing a weighted average of the status percentage for a current and the previous four polling intervals and determining the state of said at least one network device from the weighted average.

38 - 41. (Cancelled)

42. (Previously Presented) The system recited in claim 17 wherein said remote network server computes a weighted average by assigning a weight value to the status percentage to each of the previous four polling intervals, wherein the assigned weight is higher for the most recent polling interval and lower for the least recent polling interval.

43. (Previously Presented) The method recited in claim 30 wherein said computing a weighted average comprises assigning a weight value to the status percentage to each of the previous four polling intervals, wherein the assigned weight is higher for the most recent polling interval and lower for the least recent polling interval.

44. (Currently Amended) The method as recited in claim [[28]]30 wherein said deriving state information is performed by a remote network server.

45. (Currently Amended) The method as recited in claim [[28]]30 wherein said deriving state information is performed by a network hub server.